

(REVIEW ARTICLE)



## Designing state-level policies to support independent pharmacies in providing specialty care services in rural regions

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### Abstract

This review paper explores the critical role of independent pharmacies in rural regions, emphasizing their potential to deliver specialty care services despite facing significant challenges. These challenges include financial constraints, regulatory barriers, and limited specialized training and resource access. The paper argues that comprehensive state-level policies are necessary to support these pharmacies, enabling them to overcome these obstacles and enhance healthcare access in rural areas. Key policy recommendations include providing financial incentives such as grants and subsidies, regulatory reforms to streamline licensing processes and expand the scope of practice for pharmacists, and promoting partnerships between pharmacies, healthcare providers, and telehealth services. The paper also highlights the importance of integrating independent pharmacies into state health programs and adopting advanced technologies like telepharmacy and electronic health records. Future research directions are suggested, focusing on the impact of digital health technologies and evolving healthcare payment models on independent pharmacies in rural regions. The paper concludes by underscoring the need for targeted policy interventions to strengthen the role of independent pharmacies in rural healthcare, thereby improving health outcomes and quality of life for rural populations.

**Keywords:** Independent Pharmacies; Rural Healthcare; Specialty Care Services; State-Level Policies; Regulatory Reforms; Tele-pharmacy

## 1. Introduction

### 1.1. Overview of Independent Pharmacies in Rural Regions

Independent pharmacies play a vital role in the healthcare ecosystem of rural regions. Unlike their urban counterparts, these pharmacies are often the primary, if not the only, providers of essential medications and healthcare services to geographically isolated communities (Yau, Thor, Tsai, Speare, & Rissel, 2021). The unique position of independent pharmacies in rural areas is underscored by the fact that they frequently serve populations that face significant barriers to accessing healthcare, such as long travel distances to the nearest hospital or clinic, limited public transportation options, and shortages of healthcare professionals. These pharmacies provide medications and a range of services, including patient counseling, chronic disease management, and preventive care, which are crucial in areas where healthcare options are limited (Newman et al., 2020).

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However, the sustainability of independent pharmacies in rural regions is increasingly under threat. Economic pressures, including lower reimbursement rates from insurance companies and rising operational costs, have made it difficult for many of these pharmacies to remain financially viable (Osae, Chastain, & Young, 2022). Additionally, competition from larger chain pharmacies and mail-order services has further strained their ability to serve rural populations effectively. The decline of independent pharmacies in rural areas poses a significant risk to these communities' overall health and well-being, as it can lead to reduced access to essential medications and healthcare services (Tekeba, Ayele, Negash, & Gashaw, 2021).

### **1.2. Importance of Specialty Care Services**

The growing need for specialty care services in rural regions has become increasingly apparent as chronic and complex health conditions continue to rise. Specialty care services, which include the management of conditions such as cancer, HIV, autoimmune disorders, and rare diseases, require specialized medications and expertise that are often unavailable in rural areas. Patients in these regions frequently face significant challenges in accessing specialty care, including long travel times to urban centers, high out-of-pocket costs, and delays in receiving treatment (Kornelsen et al., 2021).

Independent pharmacies have the potential to bridge this gap by providing specialty care services locally. These pharmacies can play a critical role in improving health outcomes for patients with complex medical needs by offering specialized medications, patient education, and disease management programs. However, the provision of specialty care services by independent pharmacies is challenging. These services often require significant investment in specialized training, infrastructure, and technology, which can be difficult for small, rural pharmacies to afford (Daly et al., 2021).

### **1.3. Purpose and Scope of the Paper**

The primary objective of this research paper is to explore and propose state-level policy solutions that can support independent pharmacies in providing specialty care services in rural regions. Given the challenges these pharmacies face, there is a pressing need for targeted policies that can help them overcome economic, regulatory, and logistical barriers. This paper will focus on identifying the key elements of a policy framework that can enhance the capacity of independent pharmacies to deliver specialty care services, thereby improving healthcare access and outcomes in rural communities.

This paper will also examine the broader implications of such policies for the rural healthcare system. By enabling independent pharmacies to expand their service offerings, state-level policies can contribute to a more integrated and resilient healthcare system that better meets the needs of rural populations. The analysis will consider various policy tools, including financial incentives, regulatory reforms, and opportunities for collaboration with other healthcare providers. Ultimately, this paper aims to provide a comprehensive and actionable set of recommendations for policymakers seeking to strengthen the role of independent pharmacies in rural healthcare delivery.

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## **2. Current Landscape and Challenges**

### **2.1. Regulatory Environment**

The regulatory environment surrounding independent pharmacies in rural areas is a complex web of state and federal regulations, each with its challenges and implications. At the state level, regulations vary widely, reflecting differences in local priorities, healthcare needs, and political landscapes. However, common across most states are stringent licensing requirements, reimbursement policies, and restrictions on the scope of practice for pharmacists, all of which can pose significant hurdles for independent pharmacies (Ahmad, Qasim, & Policy).

Federal regulations further complicate the landscape. The Centers for Medicare & Medicaid Services (CMS) and the Food and Drug Administration (FDA) impose regulations that govern drug dispensing, insurance reimbursements, and the use of specialty medications. These regulations are often designed with large, urban-based pharmacies in mind, creating additional challenges for small, rural pharmacies that lack the administrative resources to navigate these rules effectively (Iqbal et al., 2021). For example, the Medicare Part D program provides prescription drug coverage for seniors and has specific requirements for pharmacies that wish to participate as providers. These requirements often include complex administrative processes, such as the submission of detailed documentation and adherence to specific formulary requirements. Independent pharmacies, particularly those in rural areas with limited staffing, may find it difficult to meet these demands, resulting in exclusion from critical reimbursement opportunities (Kennedy, 2024).

Moreover, state regulations frequently mandate that pharmacies obtain specific licenses to dispense certain types of medications, particularly controlled substances or specialty drugs (Dydyk, Sizemore, Ravert, & Porter, 2023). These

licensing processes can be cumbersome and costly, requiring significant investment in time and money. The financial burden of meeting these regulatory requirements can be overwhelming for rural independent pharmacies, which often operate on thin margins, leading some to forgo offering specialty services altogether (Kamba et al., 2020).

## **2.2. Barriers to Providing Specialty Care**

Independent pharmacies in rural regions face a multitude of barriers when it comes to providing specialty care services. Financial constraints are perhaps the most significant challenge. Specialty medications are often expensive to stock, requiring pharmacies to invest substantial capital upfront. Additionally, these drugs typically have shorter shelf lives and lower turnover rates compared to more commonly prescribed medications, increasing the financial risk for pharmacies that choose to offer them (Campling et al., 2022).

Reimbursement rates for specialty medications are another critical issue. Insurance companies, including government programs like Medicare and Medicaid, often reimburse pharmacies at rates that barely cover the cost of the medication, leaving little room for profit (Emmons et al., 2021). For rural independent pharmacies, which do not benefit from the economies of scale enjoyed by larger chain pharmacies, these low reimbursement rates can make it financially unviable to offer specialty medications. The disparity in reimbursement rates between rural and urban pharmacies further exacerbates this issue, as rural pharmacies often have to contend with higher operating costs due to their remote locations (Murphy, West, & Jindal, 2021).

In addition to financial barriers, independent pharmacies in rural areas also face significant logistical challenges. Rural regions often suffer from poor infrastructure, including inadequate transportation networks and unreliable supply chains. This can result in delays in receiving medications, particularly those that require special handling or refrigeration, which are common among specialty drugs. The lack of access to reliable delivery services further complicates the ability of rural pharmacies to provide timely and consistent specialty care.

Another major barrier is the limited access to specialized training and professional development opportunities for pharmacists in rural areas (Hays, Taylor, & Glass, 2020). Specialty care often requires pharmacists to have in-depth knowledge of complex medical conditions and the specific medications used to treat them. However, rural pharmacists may not have the same training resources as their urban counterparts, making it difficult to acquire the necessary expertise. This lack of specialized training can hinder the ability of rural independent pharmacies to provide high-quality specialty care, ultimately affecting patient outcomes (Marriott, Duncan, & Mc Namara, 2023).

Furthermore, the shortage of healthcare professionals in rural regions means that pharmacists often have to assume multiple roles, stretching their capacity to deliver specialized services. In many cases, rural pharmacists are the only healthcare providers available in their communities, and they may be required to manage a broad range of medical conditions with limited support. This can lead to burnout and reduce the ability of pharmacists to offer the specialized care that patients with complex health conditions require (Taylor, Cairns, & Glass, 2020).

## **2.3. Impact on Rural Healthcare Access**

The challenges faced by independent pharmacies in providing specialty care services have far-reaching implications for healthcare access and outcomes in rural regions. As the primary healthcare providers in many rural communities, independent pharmacies ensure patients can access the necessary medications and services. However, when these pharmacies cannot offer specialty care services, patients in rural areas may be forced to travel long distances to urban centers to receive care. This can be particularly burdensome for patients with chronic or complex health conditions, who may require frequent visits to healthcare providers (Mohiuddin, 2020).

The need to travel for specialty care not only imposes a financial burden on patients, who may have to pay for transportation and accommodation, but it can also lead to delays in receiving treatment. For patients with serious health conditions, these delays can result in the progression of disease and a deterioration in health outcomes (Crowley et al., 2020). In some cases, patients may even forgo necessary treatment altogether due to the barriers they face in accessing specialty care, leading to preventable complications and increased healthcare costs in the long term (Ezzat, 2023).

The lack of access to specialty care services in rural areas also exacerbates health disparities between rural and urban populations. Rural residents are already more likely to suffer from chronic health conditions, such as diabetes, heart disease, and respiratory illnesses, due to factors such as limited access to healthcare, higher rates of poverty, and a greater prevalence of health risk behaviors. The inability of rural independent pharmacies to provide specialty care services only widens this gap, leaving rural patients with fewer options for managing their health (West, Margo, Brown, Dowley, & Haas, 2022).

Moreover, the decline of independent pharmacies in rural regions, driven partly by the inability to offer specialty services, threatens the overall sustainability of rural healthcare systems. As these pharmacies close or reduce their services, rural communities are left with even fewer healthcare resources, further compromising the health and well-being of their residents (Paunović, Apostolopoulos, Miljković, & Stojanović, 2024). This trend also has broader economic implications, as the loss of independent pharmacies can lead to job losses and reduced economic activity in struggling rural areas (Maganty et al., 2023).

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### 3. Policy Framework for Supporting Independent Pharmacies

#### 3.1. Key Policy Considerations

Designing a policy framework to support independent pharmacies in rural regions requires a nuanced understanding of these pharmacies' challenges and their role in their communities. Key policy considerations must address the unique financial, regulatory, and logistical hurdles that rural independent pharmacies encounter while ensuring they can sustainably provide essential healthcare services, including specialty care. At the core of these considerations is the recognition that independent pharmacies are not just commercial enterprises but also critical healthcare providers, often serving as the first point of contact for rural residents seeking medical care (Dineen-Griffin, Benrimoj, & Garcia-Cardenas, 2020).

One of the fundamental elements of any policy framework should be providing financial support to alleviate the economic pressures independent pharmacies face. This support could be direct financial assistance, such as grants and subsidies, or indirect measures, such as tax breaks (Hallit, Selwan, & Salameh, 2020). The goal should be to reduce the financial burden on these pharmacies, enabling them to invest in the infrastructure, technology, and human resources necessary to offer specialty care services. Additionally, policies should consider establishing risk-sharing mechanisms that protect pharmacies from the financial risks of stocking expensive specialty medications, which have lower turnover rates and shorter shelf life (Cavicchi & Vagnoni, 2020).

Another critical consideration is the need for regulatory reforms that simplify the administrative and licensing processes required for independent pharmacies to operate effectively. Many of the current regulations are designed with larger, urban-based pharmacies in mind and do not consider rural pharmacies' unique challenges. Streamlining these regulations, particularly those related to dispensing specialty medications, can reduce the administrative burden on independent pharmacies, allowing them to focus more on patient care rather than compliance (Hermansyah, Wulandari, Kristina, & Meilianti, 2020).

Furthermore, policies should promote the integration of independent pharmacies into broader healthcare networks. This includes encouraging collaboration between pharmacies, healthcare providers, and state health programs to create a more coordinated and efficient care system. By fostering partnerships, independent pharmacies can expand their service offerings and provide more comprehensive care to their patients, particularly those with complex and chronic conditions (Aruru, Truong, & Clark, 2021).

#### 3.2. Financial Incentives and Subsidies

Financial incentives and subsidies are crucial tools for supporting independent pharmacies in rural regions, particularly in enabling them to provide specialty care services. The high costs associated with specialty medications and the low reimbursement rates from insurance companies make it difficult for these pharmacies to offer these services without financial assistance. State-level policies should, therefore, prioritize the creation of financial support mechanisms that can help independent pharmacies overcome these economic barriers (Salgado et al., 2020).

One approach is to establish grant programs that provide direct financial assistance to independent pharmacies to purchase specialty medications and upgrade facilities and equipment needed to handle these drugs. Grants could also fund the specialized training of pharmacists, ensuring that they have the expertise to manage complex health conditions and provide high-quality care to patients requiring specialty medications. These grants could be particularly beneficial for smaller, rural pharmacies that may lack the financial resources to invest in these areas independently (Mohiuddin, 2020).

Subsidies are another effective way to support independent pharmacies in rural regions. These could be subsidies for purchasing specialty medications or the operational costs associated with providing specialty care services. For example, subsidies could cover refrigeration costs and other specialized storage equipment needed to handle certain specialty medications safely. Additionally, subsidies could be offered to offset the costs of implementing technology

solutions, such as electronic health records (EHRs) and telepharmacy platforms, essential for managing and coordinating care for patients with complex health conditions (Umar et al., 2024).

Tax incentives can also play a role in supporting independent pharmacies. State governments could offer tax breaks to pharmacies that provide specialty care services, helping to reduce their overall tax burden and improve their financial viability. These tax incentives could be structured to reward pharmacies for offering a broad range of services, including chronic disease management, medication therapy management, and patient education programs, all of which are critical components of specialty care (Kono & Deller, 2023).

In addition to direct financial incentives, state policies could also explore the creation of risk-sharing mechanisms that help mitigate the financial risks associated with stocking and dispensing specialty medications (Julsvoll & Sickenberger, 2022). For example, state governments could establish insurance pools or reinsurance programs that protect pharmacies from the financial losses of expired or unsold medications. Such mechanisms would encourage more pharmacies to offer specialty care services by reducing the financial risks (Brown, 2020).

### **3.3. Regulatory Reforms**

Regulatory reforms are essential to enabling independent pharmacies to expand their service offerings, particularly in specialty care. Many of the current regulations governing the operation of pharmacies were developed with larger, urban-based pharmacies in mind and did not adequately account for the unique challenges independent pharmacies face in rural regions. Simplifying and streamlining these regulations is a critical step in creating a more supportive environment for rural pharmacies. One area where regulatory reform is particularly needed is in the licensing process for dispensing specialty medications (Ahmad et al.). Currently, the requirements for obtaining the necessary licenses to handle these drugs can be complex and burdensome, particularly for smaller pharmacies with limited administrative resources. State governments could simplify these processes by reducing the paperwork, shortening approval times, and providing clear guidance on the requirements. Additionally, states could implement a tiered licensing system that allows pharmacies to gradually expand their service offerings as they gain the necessary expertise and resources, rather than requiring them to meet all the requirements upfront (Karwaki, 2020).

Another important regulatory reform is expanding the scope of practice for pharmacists. In many states, pharmacists are limited in the types of services they can provide, even though they are often the most accessible healthcare providers in rural areas (Wyatt, Zuckerman, Hughes, Arnall, & Miller, 2022). Expanding the scope of practice to include services such as medication therapy, chronic disease management, and immunizations could allow pharmacists to take on a more active role in managing patient care. This is particularly important for patients with complex health conditions who require specialized care and close monitoring (Salgado et al., 2020).

Regulatory reforms should also address the issue of insurance reimbursements. Low reimbursement rates are a significant barrier to independent pharmacies' provision of specialty care services. State governments could work with insurance companies to establish more favorable reimbursement rates for pharmacies that provide these services. Additionally, states could implement policies requiring insurance companies to reimburse pharmacies for the full cost of specialty medications rather than only a portion. This would help ensure that pharmacies can cover their expenses and continue offering these critical services to their patients (Daly, Quinn, Mak, & Jacobs, 2020). Furthermore, states could consider implementing regulations that encourage the use of technology in independent pharmacies. For example, policies could be implemented to promote the adoption of electronic health records (EHRs) and telepharmacy platforms, which are essential for managing and coordinating care for patients with complex health conditions. These technologies can help improve the efficiency and effectiveness of care delivery, allowing pharmacists to provide more comprehensive and personalized care to their patients (Olatunji, Olaboye, Maha, Kolawole, & Abdul, 2024a; Osunlaja, Enahoro, Maha, Kolawole, & Abdul, 2024).

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## **4. Collaboration and Integration with Healthcare Systems**

### **4.1. Partnership Opportunities**

Independent pharmacies in rural regions are uniquely positioned to play a central role in delivering specialty care services, but their impact can be significantly enhanced through strategic partnerships with other healthcare providers, hospitals, and telehealth services. Collaboration is key to overcoming the challenges of delivering comprehensive care in rural areas, where resources are often limited, and access to specialized healthcare is a major concern. One of the most effective ways for independent pharmacies to expand their service offerings is through partnerships with local healthcare providers, such as primary care physicians, specialists, and community health centers (Ohta, Ryu, & Otani,

2020). These collaborations can facilitate the sharing of patient information, streamline care coordination, and ensure that patients receive the most appropriate and timely care. For instance, a partnership between an independent pharmacy and a local healthcare provider could enable the pharmacy to monitor patients with chronic conditions more closely, adjust medications as needed, and provide personalized counseling on medication adherence. This collaborative approach not only improves patient outcomes but also enhances the role of the pharmacy as a vital component of the rural healthcare system (Mohiuddin, 2020).

In addition to local providers, independent pharmacies can also benefit from establishing partnerships with nearby hospitals. Hospitals, especially those in rural areas, often struggle with patient readmissions, particularly for chronic conditions that require ongoing management (Stranges et al., 2020). By collaborating with independent pharmacies, hospitals can develop discharge plans that include follow-up care and medication management, reducing the likelihood of readmissions. Pharmacies can also serve as accessible points of care for patients who require ongoing monitoring and support, ensuring continuity of care after hospital discharge (Bethishou, 2024).

Telehealth services present another valuable partnership opportunity for independent pharmacies. Telehealth can bridge the gap between rural patients and specialized care providers who may not be available locally. By integrating telehealth into their operations, independent pharmacies can offer patients virtual consultations with specialists, facilitate remote monitoring of chronic conditions, and provide education on the proper use of specialty medications. This integration expands the range of services that pharmacies can offer and makes specialty care more accessible to patients who would otherwise have to travel long distances to receive it (DeRemer, Reiter, & Olson, 2021).

#### **4.2. Integration into State Health Programs**

For independent pharmacies to fully realize their potential in delivering specialty care services, they must be integrated into state-managed health initiatives, such as Medicaid and public health programs. State health programs are often the primary source of healthcare coverage for rural residents, particularly those with low incomes or chronic health conditions. By incorporating independent pharmacies into these programs, states can ensure that patients can access the full spectrum of healthcare services, including specialty care (Olaboje, Maha, Kolawole, & Abdul; Olatunji, Olaboje, Maha, Kolawole, & Abdul, 2024b).

One way to achieve this integration is by including independent pharmacies in Medicaid-managed care networks. Medicaid, which provides health coverage to millions of low-income Americans, often relies on managed care organizations (MCOs) to deliver services. By allowing independent pharmacies to participate as providers in these networks, states can expand the availability of specialty care services to Medicaid beneficiaries in rural areas. This inclusion would enable pharmacies to receive reimbursement for a wider range of services, such as medication therapy management, chronic disease management, and immunizations, all of which are critical components of specialty care (Opoku, Apenteng, Kimsey, Peden, & Owens, 2022).

Another approach involves independent pharmacies in state public health initiatives, such as vaccination campaigns, chronic disease prevention programs, and health screenings. These initiatives are often conducted through state health departments to improve population health outcomes. By partnering with independent pharmacies, states can leverage the accessibility and trust that these pharmacies have within their communities to reach a broader audience. For example, pharmacies can serve as vaccination sites during flu season or as screening centers for conditions like diabetes and hypertension, enhancing public health programs' reach and effectiveness (Czech et al., 2020). Additionally, states can explore the development of pilot programs that specifically target the integration of independent pharmacies into the delivery of specialty care services. These programs could provide funding and technical assistance to pharmacies, helping them build the capacity to offer specialized services. Pilot programs could also test innovative care models involving pharmacies in managing complex conditions to scale successful models statewide (Teeter et al., 2020).

#### **4.3. Role of Technology and Innovation**

Adopting technology and innovation is essential for independent pharmacies to enhance service delivery and effectively collaborate with other healthcare providers. In rural healthcare, where resources are limited, and access to care is often constrained by geographical barriers, technology can play a transformative role in improving patient outcomes and expanding the range of services available. One of the most promising technological advancements for independent pharmacies is telepharmacy (Ameri, Salmanizadeh, Keshvaridoost, & Bahaadinbeigy, 2020). Telepharmacy allows pharmacists to provide care remotely, using video conferencing and other digital tools to interact with patients, review prescriptions, and offer counseling on medication use. This technology is particularly beneficial in rural areas, where patients may have difficulty accessing pharmacy services due to distance or transportation challenges. By implementing

telepharmacy, independent pharmacies can extend their reach to underserved communities, providing specialty care services that would otherwise be unavailable (Unni, Patel, Beazer, & Hung, 2021).

Another critical technology is electronic health records (EHRs), which enable the seamless sharing of patient information between healthcare providers. EHRs are essential for coordinating care, particularly for patients with complex health conditions who see multiple providers (Maha, Kolawole, & Abdul, 2024; Olatunji et al., 2024a). By adopting EHR systems, independent pharmacies can improve their ability to manage patient care, track medication histories, and collaborate with other healthcare providers. EHRs also facilitate the integration of pharmacies into broader healthcare networks, making it easier for them to participate in state health programs and managed care networks (Sethman, Hettinger, & Snyder, 2022).

In addition to telepharmacy and EHRs, independent pharmacies can benefit from implementing medication therapy management (MTM) software. MTM software helps pharmacists to assess patients' medication regimens, identify potential drug interactions, and develop personalized care plans. This technology is particularly useful for managing patients with chronic conditions that require complex medication regimens, such as diabetes, heart disease, or cancer. By using MTM software, pharmacies can offer more tailored and effective specialty care services, improving patient outcomes and reducing the risk of adverse events (Al Mogrin et al., 2022).

Innovation in mobile health (mHealth) applications also presents an opportunity for independent pharmacies to enhance patient engagement and adherence to treatment plans (Barata, Maia, & Mascarenhas, 2022). mHealth apps can remind patients to take their medications, provide educational resources on their conditions, and provide direct communication channels with their pharmacists. These tools empower patients to take a more active role in managing their health, which is especially important for those with chronic conditions that require ongoing treatment (Aungst, 2021).

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## 5. Conclusion and Recommendations

### 5.1. Summary of Key Points

In addressing the challenges independent pharmacies face in rural regions, this paper has highlighted the critical need for state-level policies that support these essential healthcare providers in delivering specialty care services. Independent pharmacies play a vital role in rural healthcare, often serving as the first point of contact for medical needs in communities with limited access to healthcare. However, these pharmacies face significant barriers, including financial constraints, regulatory challenges, and limited access to specialized training and resources. A comprehensive policy framework is needed to overcome these obstacles, focusing on financial incentives, regulatory reforms, and strategic collaborations with healthcare systems.

The policy framework should include key considerations such as financial incentives and subsidies, including grants, tax breaks, and subsidies to help pharmacies manage the costs associated with providing specialty care services. Regulatory reforms are also essential, particularly in simplifying licensing processes and expanding the scope of practice for pharmacists. Furthermore, collaboration and integration with healthcare systems, including partnerships with local healthcare providers, hospitals, and telehealth services, are crucial for enhancing the service delivery capacity of independent pharmacies.

### 5.2. Policy Recommendations

Based on the findings and discussions in the preceding sections, several specific, actionable recommendations can be made for state policymakers. First, states should establish grant programs and subsidies to support independent pharmacies in rural areas. These financial incentives could help cover the costs of specialized training, infrastructure upgrades, and the purchase of specialty medications. Additionally, tax incentives could be offered to pharmacies that expand their service offerings to include specialty care, thereby improving their financial viability.

Second, regulatory reforms are necessary to streamline the licensing processes for dispensing specialty medications and expand pharmacists' scope of practice. Simplifying the regulatory environment will reduce the administrative burden on independent pharmacies, allowing them to focus more on patient care. States should also work with insurance companies to improve reimbursement rates for pharmacies providing specialty care services, ensuring that these providers can cover their costs and operate sustainably.

Third, policymakers should encourage partnerships between independent pharmacies and other healthcare providers, hospitals, and telehealth services. These collaborations can enhance care coordination, improve patient outcomes, and ensure that rural residents can access the full spectrum of healthcare services. Additionally, integrating independent pharmacies into state health programs, such as Medicaid, would expand rural populations' access to specialty care.

### 5.3. Future Directions

Several areas for further research and potential developments could impact the role of independent pharmacies in rural healthcare. One area of interest is the continued advancement of telepharmacy and other digital health technologies. Research into the effectiveness of these technologies in improving access to specialty care and patient outcomes in rural areas could inform future policy decisions and lead to the broader adoption of these innovations.

Another area for future exploration is the impact of evolving healthcare payment models, such as value-based care, on independent pharmacies. As healthcare systems increasingly shift towards models that reward providers for improving patient outcomes rather than simply delivering services, it will be important to assess how independent pharmacies can adapt and thrive under these new paradigms. Finally, ongoing research into the unique healthcare needs of rural populations and the role that independent pharmacies can play in meeting these needs will be essential for informing future policy development.

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## Compliance with ethical standards

### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

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## References

- [1] Ahmad, S., Qasim, A. W., & Policy, M. P. Regulatory Burden in Pharmacy Segment of Pharmaceutical Sector of Pakistan.
- [2] Al Mogrin, M. M., Al Khleb, A. A., Al Shehri, B. M., Al Shreeaf, K. A., Al Busaysi, K. F., Al Rashidi, A. M., & Al Harbi, A. H. (2022). EVOLUTION AND ADVANCEMENTS IN THE DEVELOPMENT OF PHARMACEUTICAL CARE SERVICES. *EPH-International Journal of Medical and Health Science*, 8(1), 1-7.
- [3] Ameri, A., Salmanizadeh, F., Keshvardoost, S., & Bahaadinbeigy, K. (2020). Investigating pharmacists' views on telepharmacy: prioritizing key relationships, barriers, and benefits. *Journal of Pharmacy Technology*, 36(5), 171-178.
- [4] Aruru, M., Truong, H.-A., & Clark, S. (2021). Pharmacy Emergency Preparedness and Response (PEPR): a proposed framework for expanding pharmacy professionals' roles and contributions to emergency preparedness and response during the COVID-19 pandemic and beyond. *Research in Social and Administrative Pharmacy*, 17(1), 1967-1977.
- [5] Aungst, T. D. (2021). Reevaluating medication adherence in the era of digital health. *Expert Review of Medical Devices*, 18(sup1), 25-35.
- [6] Barata, J., Maia, F., & Mascarenhas, A. (2022). Digital transformation of the mobile connected pharmacy: a first step toward community pharmacy 5.0. *Informatics for Health and Social Care*, 47(4), 347-360.
- [7] Bethishou, L. (2024). The Role of Pharmacy in Supporting Safe and Effective Transitions of Care. *Journal of Contemporary Pharmacy Practice*, 71(2), 23-33.
- [8] Brown, D. L. (2020). It is time to rethink the all-Pharm. D. educational system: Multiple tiered degrees would better serve the diverse nature of pharmacy practice. *Journal of the American College of Clinical Pharmacy*, 3(6), 1147-1154.
- [9] Campling, N., Breen, L., Miller, E., Birtwistle, J., Richardson, A., Bennett, M., & Latter, S. (2022). Issues affecting supply of palliative medicines into community pharmacy: A qualitative study of community pharmacist and pharmaceutical wholesaler/distributor perspectives. *Exploratory Research in Clinical and Social Pharmacy*, 6, 100132.
- [10] Cavicchi, C., & Vagnoni, E. (2020). Sustainable business models in hybrids: A conceptual framework for community pharmacies' business owners. *Sustainability*, 12(19), 8125.



- [11] Crowley, R., Daniel, H., Cooney, T. G., Engel, L. S., Health, & Physicians\*, P. P. C. o. t. A. C. o. (2020). Envisioning a better US health care system for all: coverage and cost of care. *Annals of internal medicine*, 172(2\_Supplement), S7-S32.
- [12] Czech, M., Balcerzak, M., Antczak, A., Byliniak, M., Piotrowska-Rutkowska, E., Drozd, M., . . . Merks, P. (2020). Flu vaccinations in pharmacies—a review of pharmacists fighting pandemics and infectious diseases. *International journal of environmental research and public health*, 17(21), 7945.
- [13] Daly, C. J., Costello, J., Mak, A., Quinn, B., Lindenau, R., & Jacobs, D. M. (2021). Pharmacists' perceptions on patient care services and social determinants of health within independent community pharmacies in an enhanced services network. *Journal of the American College of Clinical Pharmacy*, 4(3), 288-295.
- [14] Daly, C. J., Quinn, B., Mak, A., & Jacobs, D. M. (2020). Community pharmacists' perceptions of patient care services within an enhanced service network. *Pharmacy*, 8(3), 172.
- [15] DeRemer, C. E., Reiter, J., & Olson, J. L. (2021). Transitioning ambulatory care pharmacy services to telemedicine while maintaining multidisciplinary collaborations. *American Journal of health-system Pharmacy*, 78(5), 371-375.
- [16] Dineen-Griffin, S., Benrimoj, S. I., & Garcia-Cardenas, V. (2020). Primary health care policy and vision for community pharmacy and pharmacists in Australia. *Pharmacy Practice (Granada)*, 18(2).
- [17] Dydyk, A., Sizemore, D., Ravert, D., & Porter, B. (2023). Understanding Delaware Prescribing and Distribution of Controlled Substances. *StatPearls*.
- [18] Emmons, R. P., Harris, I. M., Abdalla, M., Afolabi, T. M., Barner, A. E., Baxter, M. V., . . . Cobb, B. T. (2021). Impact of remote delivery of clinical pharmacy services on health disparities and access to care. *Journal of the American College of Clinical Pharmacy*, 4(11), 1492-1501.
- [19] Ezzat, M. A. (2023). Identifying Barriers to Healthcare Access Among Underserved Populations: A Descriptive Study. *Journal of Advanced Analytics in Healthcare Management*, 7(1), 1-17.
- [20] Hallit, S., Selwan, C. A., & Salameh, P. (2020). Primary health care policy and vision for community pharmacy and pharmacists in Lebanon. *Pharmacy Practice (Granada)*, 18(2).
- [21] Hays, C. A., Taylor, S. M., & Glass, B. D. (2020). The rural pharmacy practice landscape: challenges and motivators. *Journal of multidisciplinary healthcare*, 227-234.
- [22] Hermansyah, A., Wulandari, L., Kristina, S. A., & Meilianti, S. (2020). Primary health care policy and vision for community pharmacy and pharmacists in Indonesia. *Pharmacy Practice (Granada)*, 18(3).
- [23] Iqbal, A., Rutter, V., Gülpınar, G., Halai, M., Awele, B., Elshenawy, R. A., . . . Chan, A. H. Y. (2021). National pharmacy associations in the commonwealth: current scenario and future needs to maximise effective contributions of the pharmacy profession towards universal health coverage. *Journal of pharmaceutical policy and practice*, 14, 1-15.
- [24] Julsvoll, A. A., & Sickenberger, M. (2022). *How can Blockchain Technology be used to support Supply Chain Risk Management in Drug Supply Chains?* Handelshøyskolen BI,
- [25] Kamba, P. F., Mulangwa, J., Kaggwa, B., Kitutu, F. E., Sewankambo, N. K., Katabira, E. T., . . . Bollinger, R. C. (2020). Compliance of private pharmacies in Uganda with controlled prescription drugs regulations: a mixed-methods study. *Substance Abuse Treatment, Prevention, and Policy*, 15, 1-13.
- [26] Karwaki, T. E. (2020). Giving Pharmacists Provider Rights. *Tex. A&M L. Rev.*, 8, 331.
- [27] Kennedy, K. A. (2024). Medicare's Making of a Monster: How the US Medicare Program Inadvertently Contributes to Barriers to Access in the Prescription Drug Market. *Elder LJ*, 32, 115.
- [28] Kono, M., & Deller, S. (2023). Rural Pharmacies an Overlooked Piece of the Rural Health Care Milieu. *Choices*, 38(2), 1-10.
- [29] Kornelsen, J., Khowaja, A. R., Av-Gay, G., Sullivan, E., Parajulee, A., Dunnebacke, M., . . . Williamson, P. (2021). The rural tax: comprehensive out-of-pocket costs associated with patient travel in British Columbia. *BMC Health Services Research*, 21(1), 854.
- [30] Maganty, A., Byrnes, M. E., Hamm, M., Wasilko, R., Sabik, L. M., Davies, B. J., & Jacobs, B. L. (2023). Barriers to rural health care from the provider perspective. *Rural and Remote Health*, 23(2), 1-11.
- [31] Maha, C. C., Kolawole, T. O., & Abdul, S. (2024). Transforming mental health care: Telemedicine as a game-changer for low-income communities in the US and Africa. *GSC Advanced Research and Reviews*, 19(2), 275-285.

- [32] Marriott, J., Duncan, G., & Mc Namara, K. (2023). Barriers to pharmacist participation in continuing education in Australia.
- [33] Mohiuddin, A. K. (2020). *The role of the pharmacist in patient care: achieving high quality, cost-effective and accessible healthcare through a team-based, patient-centered approach*: Universal-Publishers.
- [34] Murphy, E. M., West, L., & Jindal, N. (2021). Pharmacist provider status: Geoprocessing analysis of pharmacy locations, medically underserved areas, populations, and health professional shortage areas. *Journal of the American Pharmacists Association*, 61(6), 651-660. e651.
- [35] Newman, T. V., San-Juan-Rodriguez, A., Parekh, N., Swart, E. C., Klein-Fedyshin, M., Shrank, W. H., & Hernandez, I. (2020). Impact of community pharmacist-led interventions in chronic disease management on clinical, utilization, and economic outcomes: an umbrella review. *Research in Social and Administrative Pharmacy*, 16(9), 1155-1165.
- [36] Ohta, R., Ryu, Y., & Otani, J. (2020). Rural physicians' perceptions about the challenges of participating in interprofessional collaboration: insights from a focus group study. *Journal of Interprofessional Education & Practice*, 20, 100345.
- [37] Olaboye, J. A., Maha, C. C., Kolawole, T. O., & Abdul, S. Promoting health and educational equity: Cross-disciplinary strategies for enhancing public health and educational outcomes.
- [38] Olatunji, A. O., Olaboye, J. A., Maha, C. C., Kolawole, T. O., & Abdul, S. (2024a). Emerging vaccines for emerging diseases: Innovations in immunization strategies to address global health challenges. *International Medical Science Research Journal*, 4(7), 740-755.
- [39] Olatunji, A. O., Olaboye, J. A., Maha, C. C., Kolawole, T. O., & Abdul, S. (2024b). Revolutionizing infectious disease management in low-resource settings: The impact of rapid diagnostic technologies and portable devices. *International Journal of Applied Research in Social Sciences*, 6(7), 1417-1432.
- [40] Opoku, S. T., Apenteng, B. A., Kimsey, L., Peden, A., & Owens, C. (2022). COVID-19 and social determinants of health: Medicaid managed care organizations' experiences with addressing member social needs. *Plos one*, 17(3), e0264940.
- [41] Osaë, S. P., Chastain, D. B., & Young, H. N. (2022). Pharmacist role in addressing health disparities—Part 2: Strategies to move toward health equity. *Journal of the American College of Clinical Pharmacy*, 5(5), 541-550.
- [42] Osunlaja, O., Enahoro, A., Maha, C. C., Kolawole, T. O., & Abdul, S. (2024). Healthcare management education and training: Preparing the next generation of leaders-a review. *International Journal of Applied Research in Social Sciences*, 6(6), 1178-1192.
- [43] Paunović, I., Apostolopoulos, S., Miljković, I. B., & Stojanović, M. (2024). Sustainable Rural Healthcare Entrepreneurship: A Case Study of Serbia. *Sustainability*, 16(3), 1143.
- [44] Salgado, T. M., Rosenthal, M. M., Coe, A. B., Kaefer, T. N., Dixon, D. L., & Farris, K. B. (2020). Primary healthcare policy and vision for community pharmacy and pharmacists in the United States. *Pharmacy Practice (Granada)*, 18(3).
- [45] Sethman, N. C., Hettinger, K. N., & Snyder, M. E. (2022). Planning for health information exchange: Perspectives of community pharmacists in the Community Pharmacy Enhanced Services Network of Indiana. *Journal of the American Pharmacists Association*, 62(5), 1615-1622.
- [46] Stranges, P. M., Jackevicius, C. A., Anderson, S. L., Bondi, D. S., Danelich, I., Emmons, R. P., . . . Phan, H. (2020). Role of clinical pharmacists and pharmacy support personnel in transitions of care. *Journal of the American College of Clinical Pharmacy*, 3(2), 532-545.
- [47] Taylor, S., Cairns, A., & Glass, B. (2020). Role theory: a framework to explore health professional perceptions of expanding rural community pharmacists' role. *Pharmacy*, 8(3), 161.
- [48] Teeter, B. S., Mosley, C., Thomas, J. L., Martin, B., Jones, D., Romero, J. R., & Curran, G. M. (2020). Improving HPV vaccination using implementation strategies in community pharmacies: Pilot study protocol. *Research in Social and Administrative Pharmacy*, 16(3), 336-341.
- [49] Tekeba, A., Ayele, Y., Negash, B., & Gashaw, T. (2021). Extent of and factors associated with self-medication among clients visiting community pharmacies in the era of COVID-19: Does it relieve the possible impact of the pandemic on the health-care system? *Risk management and healthcare policy*, 4939-4951.

- [50] Umar, A. K., Limpikirati, P., Luckanagul, J. A., Zothantluanga, J. H., Shumkova, M. M., & Prosvirkin, G. (2024). Telepharmacy: a modern solution for expanding access to pharmacy services. In *Artificial Intelligence, Big Data, Blockchain and 5G for the Digital Transformation of the Healthcare Industry* (pp. 111-150): Elsevier.
- [51] Unni, E. J., Patel, K., Beazer, I. R., & Hung, M. (2021). Telepharmacy during COVID-19: a scoping review. *Pharmacy*, 9(4), 183.
- [52] West, R. L., Margo, J., Brown, J., Dowley, A., & Haas, S. (2022). Convergence of service providers and managers' perspectives on strengths, gaps, and priorities for rural health system redesign: A whole-systems qualitative study in Washington County, Maine. *Journal of Primary Care & Community Health*, 13, 21501319221102041.
- [53] Wyatt, H., Zuckerman, A. D., Hughes, M. E., Arnall, J., & Miller, R. (2022). Addressing the challenges of novel oncology and hematology treatments across sites of care: specialty pharmacy solutions. *Journal of Oncology Pharmacy Practice*, 28(3), 627-634.
- [54] Yau, J. W., Thor, S. M., Tsai, D., Speare, T., & Rissel, C. (2021). Antimicrobial stewardship in rural and remote primary health care: a narrative review. *Antimicrobial Resistance & Infection Control*, 10, 1-33.